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25-MB-21

M.Sc. II SEMESTER [MAIN/ATKT] EXAMINATION MAY - JUNE 2025

MICROBIOLOGY

Paper - I

[Microbial Genetics]

[Max. Marks : 75]

[Time : 3:00 Hrs.]

[Min. Marks : 26]

Note : Candidate should write his/her Roll Number at the prescribed space on the question paper.
Student should not write anything on question paper.
Attempt all five questions. Each question carries an internal choice.
Each question carries **15 marks**.

Q. 1 Describe the mechanism of DNA Replication, Synthesis of leading and lagging strands in Prokaryotes.

OR

Write short answers on -

- i) Super helicity in DNA and action of Topoisomerases.
- ii) Structure of DNA and its types.

Q. 2 Explain induced mutations and DNA damage due to mutation in detail.

OR

Write short note on -

- i) Physical Mutagens.
- ii) DNA Repair System.

Q. 3 Explain the process of Prokaryotic transcription in detail and illustrate the difference between Polycistronic and Monocistronic RNA

OR

Write short notes on -

- i) mRNA, tRNA, rRNA.
- ii) Post transcriptional modifications.

P.T.O.

Q. 4 Define Operon. Explain positive and Negative control of Lac operon in E.Coli.

OR

Write short notes on -

- i) Ara Operon.
- ii) Genetic Code.

Q. 5 Write short notes on -

- i) Transformation.
- ii) Application of Transfection.

OR

Write short notes on -

- i) Transduction.
- ii) Conjugation.

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